UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,694	08/03/2006	Yozo Shoji	72314	4956

23872 7590 10/14/2009

MCGLEW & TUTTLE, PC
P.O. BOX 9227
SCARBOROUGH STATION
SCARBOROUGH, NY 10510-9227

EXAMINER	
MAPA, MICHAEL Y	

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
10/14/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/597,694	SHOJI ET AL.	
	Examiner	Art Unit	
	Michael Mapa	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-7,9 and 11-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-7,9 and 11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 08/19/09 has been considered by the examiner.

Response to Amendment

2. The applicant has amended the following:

Claims: 1, 6 and 12 have been amended.

Claims: 3, 5, 7, 9, 11 and 13-14 has not been amended.

Claims: 2, 4, 8 and 10 have been cancelled.

With regards to the claim objection on claim 12 on the last office action, the applicant has amended the claims to overcome the claim objection, therefore the applicant withdraws the claim objection on claim 12 from the previous office action.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 3, 5-7, 9 and 11-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3, 5-7, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (US Patent Publication US 2002/0187769 herein after referenced as Johnson) in view of Masoian (US Patent Publication 2002/0123306 herein after referenced as Masoian) and further in view of NPL document “Millimeter-wave Ad-hoc Wireless Access System” herein after referenced as NPL1.

Regarding claim 1, Johnson discloses:

The applicant claims "A wireless access method in which there are installed a plurality of access point stations deploying a wireless service area” (Fig. 3 & Paragraph [0012] of Johnson, wherein Johnson discloses a wireless communication system and method having multiple base stations communicating in a millimeter wave trunk line).

The applicant claims "and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations to perform communication” (Paragraph [0027] of Johnson, wherein Johnson discloses carrying the signals from several base stations to the central office and then back out again to the cellular base stations for transmission to the user’s cellular phones and communication devices).

The applicant claims "the method comprising: performing point-to-multipoint type communication with the mobile radio terminal by providing an RF transceiver in each of the plurality of access point stations" (Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations as well as user's cellular phones and other communication devices, therefore point-to-multipoint).

The applicant claims "performing point-to-point type communication with other access point stations by providing one or more another RF transceivers in each of the plurality of access point stations" (Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations forming a chain from base station to base station back to the central office, therefore point-to-point).

The applicant claims "said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station" (Paragraph [0027] of Johnson, wherein Johnson discloses a central office and several cellular base stations, wherein the first base station closest to the central office is the control access point and the other base stations are the repeater access point stations).

The applicant claims "signal processing at each access point being performed in an IF frequency band obtained by performing down-converting from an RF frequency band" (Paragraph [0033] of Johnson).

The applicant claims "said control access point station performing signal modulation/demodulation or access control, said control access point station broadcasting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access point and simultaneously relaying/transmitting a second signal in a second RF frequency band to said first repeater access point station" (Figs. 3 & 5 & Paragraph [0033] of Johnson, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain, therefore a first and second signal in a first and second RF frequency band).

The applicant claims "said second repeater access point station converting and dividing a reception signal in a RF frequency band into two signals and converting said two signals into a third signal in a third RF frequency band and a fourth signal in a fourth RF frequency band when said second repeater access point station receives said reception signal from one of said first repeater access point station and said control access point station" (Figs. 3 & 5 & Paragraph [0033] of Johnson, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain, therefore the second repeater access point station receiving a signal from a first repeater access point station and said control access point station and converting the third and fourth signal into a third and fourth RF frequency).

The applicant claims "said second repeater access point station broadcasting and delivering said third signal to each mobile radio terminal located within a coverage area of said second repeater access point and simultaneously relaying/transmitting said fourth signal to another one of said access point stations based on a non-reproduction scheme" (Paragraphs [0033] and [0042] of Johnson, wherein Johnson discloses converting the signal to the cell phone band and broadcasting it as well as retransmitting to the next base station in the chain. Johnson also discloses using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media, therefore a non-reproduction scheme).

The applicant claims "said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said coverage area of said second repeater access point station" (Paragraph [0030] of Johnson, wherein Johnson discloses the base station receiving the cell phone frequencies within its cell).

The applicant claims "said second repeater access point station relaying/transmitting said mobile radio terminal signal to one of said access point stations based on a non-reproduction scheme" (Paragraph [0027] & [0042] of Johnson, wherein Johnson discloses carrying the signal from several base stations to the central office and using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media).

Johnson discloses dividing the reception signal in a RF frequency band into two signals, one signal in an IF frequency band (Fig. 5 of Johnson). However, Johnson fails

to explicitly recite “dividing a reception signal in a RF frequency band into two signals in an IF frequency band.”

In a related field of endeavor, Masoian discloses receiving a signal, downconverting the signal to an intermediate frequency to increase the efficiency of the filtering and amplifying it before sending the signal out again (Paragraphs [0019]-[0021] of Masoian).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson to incorporate the teachings of Masoian of performing down conversion to IF frequency range before amplifying and sending the signal out to the next base station in the line for the purpose of improving signal quality and increasing the efficiency of the filtering (Paragraph [0021] of Masoian).

Johnson in view of Masoian discloses using RF transceivers. However fails to explicitly recite “a self-heterodyne RF transceiver.”

In a similar field of endeavor, NPL1 discloses:

The applicant claims "a self-heterodyne RF transceiver” (Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson in view of Masoian to incorporate the teachings of NPL1 for the purpose of greatly reducing the cost of developing and constructing an RF transceiver (Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1).

Johnson in view of Masoian and further in view of NPL1 discloses:

The applicant claims "said second repeater access point station generating said third signal in said third RF frequency band and said signal in said fourth RF frequency band based on a self-heterodyne procedure from the divided signals in the IF frequency band" (Fig. 5 & Paragraph [0033] of Johnson & Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain and wherein NPL1 discloses using a self-heterodyne transceiver, therefore the second repeater access point station receiving a signal from a first repeater access point station and said control access point station and converting the third and fourth signal into a third and fourth RF frequency based on a self heterodyne procedure).

Regarding claim 3, Johnson in view of Masoian and further in view of NPL1 discloses:

The applicant claims "The wireless access method according to claim 1 wherein: to a radio signal transmitted from the control access point station to another access point station, there is attached destination information for allowing a destination access point station to perform identification" (Paragraphs [0027] & [0032] of Johnson, wherein Johnson discloses the central office routing the signals for transmission to user's cell phones and communication devices, wherein each base station is given a 32 MHz slice of the spectrum, therefore an attached destination information).

The applicant claims "and each repeater access point station identifies destination information of a received signal, relaying/transmitting the signal to another access point station based on a non-reproduction scheme when the signal is not destined for the own station" (Paragraphs [0033] & [0042] of Johnson, wherein Johnson discloses each base station receives and picks off the signals in its 32 MHz slice and retransmits the 91-93 GHz band to the next base station in the chain).

The applicant claims "broadcasting the signal to the coverage area of the own station to deliver the signal to all mobile radio terminals when the signal is destined for the own station" (Paragraph [0033] of Johnson, wherein Johnson discloses each base station picks off the signals in its 32 MHz slice and down-converts this band to the cell phone band and broadcasts it).

Regarding claim 5, Johnson in view of Masoian and further in view of NPL1 discloses:

The applicant claims "The wireless access method according to claim 1, wherein the self-heterodyne RF transceiver included in the access point station is based on a millimeter- wave self-heterodyne scheme" (Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).

Regarding claim 6, Johnson discloses:

The applicant claims "A wireless access system in which there are installed a plurality of access point stations deploying a wireless service area" (Fig. 3 & Paragraph

[0012] of Johnson, wherein Johnson discloses a wireless communication system and method having multiple base stations communicating in a millimeter wave trunk line).

The applicant claims "and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations" (Paragraph [0027] of Johnson, wherein Johnson discloses carrying the signals from several base stations to the central office and then back out again to the cellular base stations for transmission to the user's cellular phones and communication devices).

The applicant claims "the system comprising: an RF transceiver to form point-to-multipoint type communication link with the mobile radio terminal, said RF transceiver being located in each of said plurality of access point stations" (Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations as well as user's cellular phones and other communication devices, therefore point-to-multipoint).

The applicant claims "and one or more another RF transceivers to form a point-to-point type communication link with another access point station" (Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations forming a chain from base station to base station back to the central office, therefore point-to-point).

The applicant claims "said plurality of access point stations comprising a control access station point, a first repeater access point station and a second repeater access point station" (Paragraph [0027] of Johnson, wherein Johnson discloses a central office

and several cellular base stations, wherein the first base station closest to the central office is the control access point and the other base stations are the repeater access point stations).

The applicant claims "wherein signal processing at each access point station is performed in an IF frequency band obtained by performing down-converting from an RF frequency band" (Paragraph [0033] of Johnson).

The applicant claims "said control access station point transmitting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access station point and simultaneously transmitting a second signal in a second RF frequency band to said first repeater access point station" (Figs. 3 & 5 & Paragraph [0033] of Johnson, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain, therefore a first and second signal in a first and second RF frequency band).

The applicant claims "said second repeater access point station converting and dividing a reception signal in a RF frequency band into two signals and converting said two signals into a third signal in a third RF frequency band and a fourth signal in a fourth RF frequency band when said second repeater access point station receives said reception signal from one of said first repeater access point station and said control access point station" (Figs. 3 & 5 & Paragraph [0033] of Johnson, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal

and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain, therefore the second repeater access point station receiving a signal from a first repeater access point station and said control access point station and converting the third and fourth signal into a third and fourth RF frequency).

The applicant claims "said second repeater access point station broadcasting and delivering said third signal to each mobile radio terminal located within a coverage area of said first repeater access point station and simultaneously transmitting said fourth signal to another one of said access point stations based on a non-reproduction scheme" (Paragraphs [0033] and [0042] of Johnson, wherein Johnson discloses converting the signal to the cell phone band and broadcasting it as well as retransmitting to the next base station in the chain. Johnson also discloses using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media, therefore a non-reproduction scheme).

The applicant claims "said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said coverage area of said first repeater access point station" (Paragraph [0030] of Johnson, wherein Johnson discloses the base station receiving the cell phone frequencies within its cell).

The applicant claims "said second repeater access point station transmitting said mobile radio terminal signal to another one of said access point stations" (Paragraph [0027] & [0042] of Johnson, wherein Johnson discloses carrying the signal from several

base stations to the central office and using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media).

Johnson discloses dividing the reception signal in a RF frequency band into two signals, one signal in an IF frequency band (Fig. 5 of Johnson). However, Johnson fails to explicitly recite “dividing a reception signal in a RF frequency band into two signals in an IF frequency band.”

In a related field of endeavor, Masoian discloses receiving a signal, downconverting the signal to an intermediate frequency to increase the efficiency of the filtering and amplifying it before sending the signal out again (Paragraphs [0019]-[0021] of Masoian).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson to incorporate the teachings of Masoian of performing down conversion to IF frequency range before amplifying and sending the signal out to the next base station in the line for the purpose of improving signal quality and increasing the efficiency of the filtering (Paragraph [0021] of Masoian).

Johnson in view of Masoian discloses using RF transceivers. However fails to explicitly recite “a self-heterodyne RF transceiver.”

In a similar field of endeavor, NPL1 discloses:

The applicant claims "a self-heterodyne RF transceiver” (Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson in view of Masoian to incorporate the teachings of NPL1 for the purpose of greatly reducing the cost of developing and constructing an RF transceiver (Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1).

Johnson in view of Masoian and further in view of NPL1 discloses:

The applicant claims "said second repeater access point station generating said third signal in said third RF frequency and said fourth signal in said fourth RF frequency band based on a self-heterodyne procedure from said divided signals in said IF frequency band" (Fig. 5 & Paragraph [0033] of Johnson & Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain and wherein NPL1 discloses using a self-heterodyne transceiver, therefore the second repeater access point station receiving a signal from a first repeater access point station and said control access point station and converting the third and fourth signal into a third and fourth RF frequency based on a self heterodyne procedure).

Regarding claim 7, Johnson in view of Masoian and further in view of NPL1 discloses:

The applicant claims "The wireless access system according to claim 6, wherein the plurality of access point stations are constructed in cascade arrangement or two-dimensionally across a wide area" (Fig. 3 & Paragraph [0027] of Johnson, wherein

Johnson discloses the millimeter wave link forming a chain from base station to base station back to the central office).

The applicant claims "whereby a wireless service zone is deployed on a planar surface" (Fig. 1 & Paragraph [0003] of Johnson, wherein Johnson discloses a typical cellular telephone system wherein a service provided divides its territory up into hexagonal cells, therefore a planar surface).

Regarding claim 9, Johnson in view of Masoian and further in view of NPL1 discloses "The wireless access system according to claim 6." The method claims disclosed above performs the functionalities that correspond to the apparatus/system of the system claims, therefore since the method claims are performing functionalities that corresponds with the apparatus/system performing the methods, the examiner rejects claim 9 with the same arguments provided above (see claim 3).

Regarding claim 11, Johnson in view of Masoian and further in view of NPL1 discloses "The wireless access system according to claim 6." The method claims disclosed above performs the functionalities that correspond to the apparatus/system of the system claims, therefore since the method claims are performing functionalities that corresponds with the apparatus/system performing the methods, The examiner rejects claim 11 with the same arguments provided above (see claim 5).

Regarding claim 12, Johnson discloses:

The applicant claims "A wireless access method, comprising: providing a plurality of access point stations, each access point station transmitting a wireless service to define a wireless service area" (Fig. 3 & Paragraph [0012] of Johnson, wherein Johnson

discloses a wireless communication system and method having multiple base stations communicating in a millimeter wave trunk line each having its own service area).

The applicant claims "providing a first RF transceiver in each of said plurality of access point stations; performing point-to-multipoint type communication with a mobile radio terminal located in one or more of said wireless service areas with said first RF transceiver" (Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations as well as user's cellular phones and other communication devices, therefore point-to-multipoint).

The applicant claims "providing a second RF transceiver in each of said plurality of access point stations; performing point-to-point type communication with one of said access point stations and another of said access point stations via said second RF transceiver" (Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations forming a chain from base station to base station back to the central office, therefore point-to-point).

The applicant claims "said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station" (Paragraph [0027] of Johnson, wherein Johnson discloses a central office and several cellular base stations, wherein the first base station closest to the central office is the control access point and the other base stations are the repeater access point stations).

The applicant claims "said control access point station performing signal modulation/demodulation or access control, wherein signal processing at each access point station is performed in an IF frequency band obtained by performing down-converting from an RF frequency band, said control access point station transmitting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access point and simultaneously transmitting a second signal in a second RF frequency band to said first repeater access point station" (Figs. 3 & 5 & Paragraph [0033] of Johnson, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain, therefore a first and second signal in a first and second RF frequency band).

The applicant claims "said second repeater access point station receiving a reception signal in a RF frequency from one of said first repeater access point station and said control access point station, said second repeater access point station converting and dividing said reception signal into a first signal and a second signal when said second repeater access point station receives a signal from one of said first repeater access point station and said control access point station, said second repeater access point station converting said first signal into a third signal in a third RF frequency band and said second repeater access point station converting said second signal into a fourth signal in a fourth RF frequency band" (Figs. 3 & 5 & Paragraph [0033] of Johnson, wherein Johnson discloses each base station in the chain receives a

signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain, therefore the second repeater access point station receiving and dividing a signal from a first repeater access point station and said control access point station and converting the first and second signal into a third and fourth RF frequency).

The applicant claims "said second repeater access point station delivering said third signal to one or more mobile radio terminals located within said wireless service area of said second repeater access point and simultaneously delivering said fourth signal to another one of said access point stations" (Paragraphs [0033] and [0042] of Johnson, wherein Johnson discloses converting the signal to the cell phone band and broadcasting it as well as retransmitting to the next base station in the chain. Johnson also discloses using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media).

The applicant claims "said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said wireless service area of said second repeater access point station" (Paragraph [0030] of Johnson, wherein Johnson discloses the base station receiving the cell phone frequencies within its cell).

The applicant claims "said second repeater access point station delivering said mobile radio terminal signal to another one access point stations" (Paragraph [0027] & [0042] of Johnson, wherein Johnson discloses carrying the signal from several base

stations to the central office and using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media).

Johnson discloses dividing the reception signal in a RF frequency band into two signals, one signal in an IF frequency band (Fig. 5 of Johnson). However, Johnson fails to explicitly recite “dividing a reception signal in a RF frequency band into a first signal and a second signal in an IF frequency band.”

In a related field of endeavor, Masoian discloses receiving a signal, downconverting the signal to an intermediate frequency to increase the efficiency of the filtering and amplifying it before sending the signal out again (Paragraphs [0019]-[0021] of Masoian).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson to incorporate the teachings of Masoian of performing down conversion to IF frequency range before amplifying and sending the signal out to the next base station in the line for the purpose of improving signal quality and increasing the efficiency of the filtering (Paragraph [0021] of Masoian).

Johnson in view of Masoian discloses using RF transceivers. However fails to explicitly recite “a self-heterodyne RF transceiver.”

In a similar field of endeavor, NPL1 discloses:

The applicant claims "a self-heterodyne RF transceiver” (Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson in view of Masoian to incorporate the teachings of NPL1 for the purpose of greatly reducing the cost of developing and constructing an RF transceiver (Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1).

Johnson in view of Masoian and further in view of NPL1 discloses:

The applicant claims "said second repeater access point station generating signals in said third and fourth RF frequency bands based on a self-heterodyne procedure from said divided signals in said IF frequency band" (Fig. 5 & Paragraph [0033] of Johnson & Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein Johnson discloses each base station in the chain receives a signal and downconverts the signal and converting to cell phone band and broadcasting it as well as retransmitting the signal to the next base station in the chain and wherein NPL1 discloses using a self-heterodyne transceiver, therefore the second repeater access point station receiving a signal from a first repeater access point station and said control access point station and converting the third and fourth signal into a third and fourth RF frequency based on a self heterodyne procedure).

Regarding claim 13, Johnson in view of Masoian and further in view of NPL1 discloses "The wireless access system according to claim 12." The examiner rejects claim 13 with the same arguments provided above (see claim 3).

Regarding claim 14, Johnson in view of Masoian and further in view of NPL1 discloses "A wireless access method according to claim 12." The examiner rejects claim 14 with the same arguments provided above (see claim 5).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Mapa whose telephone number is (571)270-5540. The examiner can normally be reached on MONDAY TO THURSDAY 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (571)272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Mapa/
Examiner, Art Unit 2617

/Dwayne D. Bost/
Supervisory Patent Examiner,
Art Unit 2617